

follows: the embryo does not penetrate the endosperm mechanically, by means of the elongating suspensor, but probably by the secretion of an enzyme; it grows for a time by means of a true apical cell, which later is replaced by a group of initials; after this, the most active growth is at the proximal end of the embryo, the first differentiation being the root periblem, the cotyledons and stem tip appearing later. It is an interesting fact that the species produces only two archegonia.

The seasonal differences between Cape Colony and the northern hemisphere in reference to the development of structures are very interesting. Pollination occurs during the winter; the ovule is in the resting stage during the late summer and autumn; pollination and fertilization are separated by 14-15 months (12-13 in England, etc.); the archegonia mature more slowly, the central cell persisting for at least three weeks (as compared with one or two weeks).—J. M. C.

Capsella Bursa-pastoris and C. Heegeri.—The relation of *Capsella Heegeri*, discovered growing wild in Germany ten years ago, to the cosmopolitan *C. Bursa-pastoris* has been in question. Its appearance in a region whose plants are so well known suggested its recent origin by mutation, and in that case the parent plant should be *C. Bursa-pastoris*. SHULL⁴⁰ conducted a series of cultures and reported the results at the Boston Meeting of the International Zoological Congress in 1907, and the report has just now appeared as an advance print from the Proceedings! The matter is old, but this publication of it may be noted. The results showed that *C. Heegeri* has the same Mendelian units in its leaves as occur in *C. Bursa-pastoris*; that the crossing of the two species gives rise to corresponding series of elementary species; that leaf characters are inherited in strict Mendelian ratios, but the capsule shows a very great departure; and that the capacity of *C. Heegeri* for self-maintenance in competition with *C. Bursa-pastoris* rests upon the comparative infrequency of cross-fertilization.—J. M. C.

⁴⁰ SHULL, GEORGE H., Results of crossing of *Bursa bursa-pastoris* and *Bursa Heegeri*. Advance print from Proc. 7th Internat. Zool. Congress. pp. 6. 1910.